

AMENDMENTS

TO THE DRAWINGS

Please enter the Replacement Sheets for FIGs. 1 and 2B attached hereto. Amendments have been made to FIGs. 1 and 2B as discussed below.

Attachment: Replacement Sheet FIG. 1
Replacement Sheet FIG. 2B

REMARKS

STATUS SUMMARY

Claims 1–20 are pending in the present application. The Examiner has objected to the drawings and claims 10 and 11 for certain formalities. The Examiner has rejected claims 7-11 under 35 U.S.C. § 112, first paragraph, and has also rejected claims 1-20 under 35 U.S.C. § 103(a). Claim 10 has been amended to address the objection and claims 7 and 8 have been amended to overcome the §112, first paragraph rejection, while traversing the §103(a) rejection of claims 1-20.

Response to Drawing Objections

The drawings are objected to because reference character “144” has been used to designate both a multiplier and one line, while reference character “154” has been used to designate both C/A code and FFT in element 106 of FIG. 1. Also, in FIG. 1, there is no reference character “118” as described in the specification. In FIG. 2B, there is no reference character “118” to indicate the signal 118 as described in the specification.

Applicant has remedied these matters by the following amendments. First, in FIG. 1, reference character “118” was added to identify the signal into comb filter 120, and the reference character “154” referring to the C/A Code of the Base Station 106 was amended to “134.” In addition, the reference character “140” and a reference line have been added to indicate the signal from FFT 154 to the mixer 138, and the second reference character “144” has been changed to “142” and its reference line was moved to identify the signal 142 to the mixer 138.

FIG. 2B has also been amended by changing the reference characters “113” and “114” to “120” and “118,” respectively, to conform to the specification (see page 7, lines 17-20, as amended).

In view of the foregoing, Applicant respectfully submits that the objections to the drawings has been overcome, and request that these objections be withdrawn.

Response to Claim Objections

Claims 10 and 11 are objected to because claim 10 lacks the word “signal.” Claim 10 was amended to correct this oversight, and Applicant therefore respectfully submits that the objections to claims 10 and 11 have been overcome, and requests that these objections be withdrawn.

Response to 35 U.S.C. §112, First Paragraph Rejection

Claims 7-11 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner states that “the GPS receiver” in claim 3, line 2, lacks antecedent basis. The Examiner asserts that the claims contain subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected to make and /or use the invention. The Examiner believes that claim 7 is dependent on claims 5 and 6, wherein a first GPS signal is received via a antenna, produces a first resultant signal (113 FIG. 1) by removing a carrier component of the GPS signal, and the first resultant signal 113 is filtered by a comb filter 120 to produce a second resultant signal 122. However, the Examiner went on to say that claim 7 recites

receiving a second GPS signal, mixing the second GPS signal and the signal 113 generated by the first GPS signal to produce another 113 signal, and this another 113 signal is filtered to produce the second resultant signal of the first GPS signal, that is not described in the specification as stated in page 7, lines 1-5. Page 7, lines 1-5 describes the resultant signal 113 obtained by removing the L1 carrier of the received GPS signals and contains the GPS data in a spread spectrum format. Signal 113 is then filtered in a comb filter 120, or the disclosure of the drawings.

Applicant has corrected “second GPS signal” to be “second compressed GPS signal” in claims 7 and 8. The “second compressed GPS signal” is supported by specification and prior use in other claims. Therefore, Applicant now believes that the §112, first paragraph rejection of claims 7-11 has been overcome by the amendments to claims 7 and 8.

Response to 35 U.S.C. §103(a) Rejection

Claims 1-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,757,916 issued to MacDoran et al. (“MacDoran ‘916”) in view of U.S. Patent No. 4,797,677 issued to MacDoran et al. (“MacDoran ‘677”). Applicant again respectfully traverses this rejection because the cited references in combination fail to teach or suggest all the features or elements recited in each of the rejected claims.

The Examiner states that the modified/combined apparatus and method of MacDoran ‘916 and MacDoran ‘677 teach the following (referring to FIG. 3 of MacDoran ‘677):

removing the carrier component (L_1/L_2) of the received GPS signals from antenna 30 by the multipliers 44 and 80;

matching a comb filter (element 62, or 72) to the received GPS signals inputted to the multiplier 68 (column 6 lines 32-40), where the received GPS signals comprises filter lines (the GPS signals shown as filter lines in spectrum); and

frequency shifting the received GPS signals inputted to the multiplier 68, with the comb filter to produce a compressed signal of the filter lines at the output of element 72.

Wherein the received GPS signals are separated from each other by a comb filter (elements 62, or 72 Fig. 3 '677) stated in column 11 lines 15-20; and the delay elements and the multipliers of Fig. 3 with the bank of comb filters comprised in the channel spectral compressor (delay and multiply) (404/405 Fig.4 '916) compress the GPS signals.

This modified/combined apparatus and method fails to teach each and every element or feature recited in the rejected claim. In general, MacDoran '677 teaches a method and apparatus for deriving the pseudo range of the user from a satellite without knowledge of the code sequence of the modulation carried by the signal from the satellite, if any. (Col. 2, lines 16-19.) This is done by recovering selected components of the satellite signal. With respect to the filters (elements 62 and 72, FIG. 3 of MacDoran '677), these filters, as well as filters 52, 88, and 98, are bandpass filters with the pass bands being the number in parentheses inside the filter block. (Col. 5, lines 48-50.) The output of each bandpass filter is then downconverted utilizing tones from synthesizer 40 in another mixer coupled to a signal processor for each selected component of the satellite signal.

This element of the modified/combined apparatus and method does not teach the matching of a comb filter to a received GPS signal to obtain a first output signal comprising filter lines of claim 1, 5 and 12, wherein the resultant signal 118 is filtered in a 1 kHz comb filter 120. (Page 7, line 4.) As shown in FIG. 2D, the frequency spectrum of signal 122 output from the

comb filter 120 is a series of signals, the number is dependent on the number of taps in the comb filter 120.

As for the frequency shifting of the filter lines in the first output signal, the modified/combined apparatus and method also fails to teach mixing signal 118 with the output of frequency generators 124, which may produce a series of signals at different frequencies, as shown in FIG. 2E. (Page 8, lines 3-5). In contrast, the modified/combined apparatus and method refers to producing a compressed signal of the filter lines at the output of element 72, which is, again, a bandpass filter.

Claims 2, 3, and 4 depend directly or indirectly from claim 1, claims 6-20 depends directly or indirectly from claim 5, and claims 13-20 depends directly or indirectly from claim 12 and are therefore distinguishable over the modified/combined apparatus and method of MacDoran '916 and MacDoran '677 for at least the same reasons.

In view of the foregoing, Applicant respectfully submits that that claims 1-20 are patentable under 35 U.S.C. § 103(a) over MacDoran '916 and MacDoran '677, and therefore requests that the rejection of claims 1-20 under 35 U.S.C. § 103(a) be withdrawn.

Moreover, the "frequency shifting the filter lines of the first output" of claim 1 refers to mixing the output 122 of the comb filter 120 with outputs from frequency generators 124 into mixers 126. Page 7, lines 5-5. This is not taught by the frequency shifting cited by the Examiner when he refers to multiplier 68, which introduces a time delay into a GPS signal output from a power divider. (Col. 6, lines 32-37).

CONCLUSION

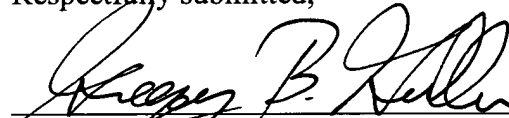
In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

Respectfully submitted,

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